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- ii) a body of a phase change material substantially encapsulating the stator, the phase change material having a thermal conductivity of at least 0.7 watts/meter°K at 23°C;
- b) a magnet in operable proximity to the stator;
- c) a shaft having a rotational axis;
- d) a bearing allowing rotation about the rotational axis of the shaft;
- e) one of the shaft or bearing being fixed to the stator assembly.

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## REMARKS

The amendment does not involve new matter. New claims 58-60 are patterned after claims 48, 49 and 53 respectively, in independent form, but rewritten to explore additional patentable subject matter.

Examiner Lam is thanked for the courtesy of the personal interview with Applicant and his attorney on June 27, 2001. In addition to the information recorded on the Examiner's Interview Summary, the following is noted regarding the interview. During the interview Applicant showed exhibits of several stator assemblies and motors, including voice coil motors, made according to the present invention. Applicant also showed a graph of the thermal conductivity of various materials, including the Konduit material described on page 27 of the specification. No claim amendments were proposed and no prior art was discussed. The thrust of the principal argument is in the Amendment mailed April 4, 2001. The Examiner agreed that the double patenting rejection in the last Office Action had been overcome, but stated that it might be converted to an obviousness-type double patenting rejection.

As a preliminary matter it is noted that claim 57 was listed on the Office Action Summary as being rejected, but no reason was given in the body of the Office Action for its rejection.

In the outstanding Office Action claims 1, 3-26, 29-37, 39 and 43-48 were rejected under 35 U.S.C. § 102(a) as being anticipated by Prior art Fig. 1 of the application. This rejection is respectfully traversed. Fig. 1 is appropriately considered

to be prior art. However, the prior art of Fig. 1 does not include each of the elements of the rejected claims. Fig. 1 is described on page 1 of the specification as follows: "An example of a conventional spindle motor 1 is shown in FIG. 1. The motor 1 includes a base 2 which is usually made from die cast aluminum, a stator 4, a shaft 6, bearings 7 and a disc support member 8, also referred to as a hub. A magnet 3 and flux return ring 5 are attached to the disc support member 8. The stator 4 is separated from the base 2 using an insulator (not shown) and attached to the base 2 using a glue. Distinct structures are formed in the base 2 and the disc support member 8 to accommodate the bearings 7. One end of the shaft 6 is inserted into the bearing 7 positioned in the base 2 and the other end of the shaft 6 is placed in the bearing 7 located in the hub 8. A separate electrical connector 9 may also be inserted into the base 2. "

It will be seen that Fig. 1 does not include a body of phase change material substantially encapsulating the stator. This element is required by claim 1, and is a substantial departure of the present invention from the prior art of Fig. 1. This limitation is also found in each of the rejected claims, as they are ultimately dependent on claim 1. Therefore this rejection should be withdrawn.

In the outstanding Office Action claims 27-28, 40 and 44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Prior art Fig. 1 of the application. This rejection is also respectfully traversed. These claims are also dependent on claim 1 and also therefore require a body of phase change material substantially encapsulating the stator, which is not found in Fig.1. The rejection appears to be predicated on the misconception that Fig. 1 includes a body of phase change material substantially encapsulating the stator, and therefore does not address any reason why Fig. 1 would have been modified to include this limitation. Including a body of phase change material would not have been an obvious matter of design choice. Without a showing of a motivation to modify the prior art, the rejection should be withdrawn.

In the outstanding Office Action claims 41 and 42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Prior art Fig. 1 of the application in view of U.S. Patent No. 5,694,268 (Dunfield). This rejection is also respectfully traversed. Claims 41 and 42 are dependent on claim 36. Claim 36 requires a solid insert substantially encapsulated within the body of phase change material. Neither Fig. 1 nor Dunfield

disclose a solid insert substantially encapsulated in a body of phase change material that also substantially encapsulates the stator. The Office Action asserts that Dunfield discloses inserts dampening motor vibration and audible noise. While Dunfield discloses an overmold encapsulating at least a part of a stator to mechanically isolate the stator from the base of the hard disc drive and thereby reduce acoustic noise generation, the Office Action does not state what element of Dunfield is considered to be the "insert", nor can Applicant's attorney find an insert that enhances dampening of motor vibration or dampening of audible noise, as required by claims 41 and 42, in the Dunfield disclosure. The Examiner is invited to identify the insert considered to meet this limitation. Otherwise this rejection should be withdrawn.

In the outstanding Office Action claims 2, 38 and 49-56 were provisionally rejected under "the judicially created doctrine of double patenting" over claims 1 and 11 of copending Application Serial No. 09/470,425. This rejection is respectfully traversed.

It is presumed that this rejection is an "obviousness-type" double patenting rejection since 35 U.S.C. § 101 was not referred to and an obviousness-type double patenting rejection was alluded to during the personal interview. Furthermore, it appears that this rejection is a special class of obviousness-type double patenting rejections based on *In re Schneller*, 397 F.2d 350 (CCPA 1968). However, this type of rejection is not appropriate. The Office Action states, "The subject matter claimed in the instant application ... would be covered by any patent granted on that copending application ..." A rejection based on *In re Schneller* is only appropriate when the earlier claim already provides coverage of what is now being claimed. See Note 2 to Form Paragraph 8.38, MPEP page 800-28 (Aug. 2001). In the present situation, this condition is not met. There would be numerous motors that would be covered by claims 2, 38 and 49-56 of the present case that would not be covered by claims 1 and 11 of Application Serial No. 09/470,425.

It is noted that the claims in Application Serial No. 09/470,425 have been amended and allowed, and will issue on October 9, 2001 as U. S. Patent No. 6,300,695. For ease of reference, claims 1 and 11 are repeated below (with some words in bold face type for emphasis) as follows:

1. A high speed spindle motor comprising:

- a) a stator assembly comprising a stator having multiple conductors that create a plurality of magnetic fields when electrical current is conducted through the conductors and a body of a phase change material having a coefficient of linear thermal expansion of less than  $2 \times 10^{-5}$  in/in/ $^{\circ}$ F throughout the range of 0-250 $^{\circ}$ F encapsulating the stator;
- b) a rotatable hub having a magnet connected thereto in operable proximity to the stator;
- c) a shaft; and
- d) a hydrodynamic bearing surrounding the shaft, one of the bearing or shaft being fixed to the stator assembly and the other of the bearing or shaft being fixed to the hub.

11. A high speed spindle motor comprising:

- a) a stator assembly comprising:
  - i) a stator having multiple conductors that create a plurality of magnetic fields when electrical current is conducted by the conductors;
  - ii) a body of phase change material substantially encapsulating the conductors, the phase change material having a thermal conductivity of at least 0.7 watts/meter $^{\circ}$ K;
- b) a rotatable hub having a magnet connected thereto in operable proximity to the stator; and
- c) a hydrodynamic bearing allowing the hub to rotate with respect to the stator assembly.

From a brief review, it will be seen that both of these independent claims in copending Application Serial No. 09/470,425 require a hydrodynamic bearing. On the other hand, claims 2, 38 and 49-56 in the present case do not require a hydrodynamic bearing. Thus claims 1 and 11 would literally only cover motors with hydrodynamic bearings. A motor including all of the elements of claim 2, for example, but not including a hydrodynamic bearing would not be covered by either of claims 1 and 11. The same thing holds true for claims 38 and 49-56. Motors with the elements specified in those

claims but without hydrodynamic bearings would not be literally covered by claims 1 and 11. It is therefore inappropriate to make a rejection based on *In re Schneller*.

It is conceivable that the Office Action was intending to make out a regular obviousness-type double patenting rejection. Such a rejection is only appropriate when a claim is not patentably distinct from a claim in another patent or application. However, no analysis was presented as to the differences between the claims, and whether those differences make the claims patentably distinct. MPEP page 800-22 states, "Any obviousness-type double patenting rejection should make clear: (A) The differences between the invention defined by the conflicting claims . . . and (B) The reasons why a person of ordinary skill in the art would conclude that the invention defined in the claims in issue is an obvious variation of the invention defined in the a claim in the patent." Neither of these two issues is addressed in the Office Action.

Claim 2 requires that the body of phase change material is a monolithic body. This requirement is not found in either of claims 1 and 11 of Application Serial No. 09/470,425. Claim 38 requires a solid insert substantially encapsulated in the body to transfer heat away from the bearing and the stator. This requirement is likewise not found in claims 1 and 11. Claims 50-52 and 54-56 also have limitations not found in claims 1 and 11 of Application Serial No. 09/470,425. There has been no explanation as to why it would have been obvious to include these elements in the invention of claims 1 and 11. Furthermore, there has been no explanation as to why some elements found in claims 1 and 11 would have been removed in coming up with the invention claimed in claims 49 and 53. Therefore the provisional obviousness-type double patenting rejection over Application Serial No. 09/470,425, however it might have been intended, should be withdrawn.

All of the outstanding rejections have been overcome. An early notice of allowance is respectfully requested. If the Examiner wishes to discuss any other details before mailing a notice of allowance, he is invited to telephone Applicant's attorney.

Respectfully submitted,

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